

REMARKS

Applicant respectfully requests reconsideration of the rejection of claims 9-12 as amended without the addition of new matter. The language as to the slot added in claim 11, as used to identify blade type, is based upon the specification at ¶[024] and ¶[031], and as shown in Figs. 1, 3 and 7. Claims 1-8 are withdrawn from consideration as a consequence of the prior requirement for restriction.

Claims 9-11 were rejected as fully anticipated by Hellenkamp (U.S. 6,527,788) and claim 12 was rejected as being obvious in view of Hellenkamp. Since all claims in active status are dependent from claim 9, it is convenient to consider them together as to both §102 and §103 aspects.

Hellenkamp '788 discloses a blade body with rear corners that are truncated either linearly (Figs. 6A to 6C) or in rounded geometry (Fig. 7). The rear corners are cut off to avoid interference when the cutting machine which controls the blade rotates the blade so that the sidewall structure 53 does not block movement of the cutting head assembly 50 by contacting the positioning ring 32 or otherwise (paraphrasing the language at column 11, lines 51-55, Hellenkamp). The posterior boundary of "substantially continuous curvilinear" and "generally hemispherical form" set out in parent claim 9 patentably distinguishes from this teaching of Hellenkamp. Both the linearly cut off and rounded cut off back corners (of Figs. 6 and 7 respectively) are not "continuous curvilinear" because the blade posterior edge is physically separate from both side edges in Hellenkamp. To make this more clear in claim 9 the "substantially

continuous curvilinear" . . . "hemispherical shape" of the posterior boundary is now stated to be from one (previously specified) end corner of the anterior boundary to the other (also previously specified) end corner of the anterior boundary. In the original form, however, the distinction was clear enough, so that a §102 rejection was inappropriate.

The Office Action argues that the blade of Hellenkamp can be characterized as a "generally hemispherical form..." explaining that this means "a half of a symmetrical, approximately spherical object as divided by a plane of symmetry." This definition does not apply because it assumes that the starting shape is approximately spheroid, which does not apply to the blade of Hellenkamp. Applicant respectfully also traverses this reasoning, because the corners of the Hellenkamp blade, whether cut off linearly at oblique angles as in Figs. 6A-6C, or individually rounded as in Fig. 7 do not make a "generally hemispherical form". The two sides on each opposite side of a dividing plane may be said to be symmetrical, but they do not follow a spherical path between the ends. Consequently, claim 9 patentably distinguishes over Hellenkamp '788.

It is appreciated that, as with claim 12, an alternative argument as to obviousness (§103) might be applied to claim 9, but this argument also would be inappropriate because it would fail to show how applicant's markedly different hemispherical back edge geometry is suggested by Hellenkamp's approach to cutting off the back corners of a blade to avoid mechanical interference. As pointed out in the present specification, the blade is a thin element, which can be easily distorted so as to have minute bends or burrs, that nevertheless militate against a proper medical result.

As pointed out in the specification at paragraphs [007] and [008], the cut made by a microkeratome blade is extremely responsive to any deflection or imperfection in the cutting blade tip or in its planar position. Furthermore, vibrations induced in the blade because of oscillation as it moves through its tangential path in the cornea can cause ripping and tearing, not only because of the imperfections but also because of stresses set up by the vibratory motion. These stresses can be promoted by local weaknesses in the body of the blade, particularly in weaknesses arising from asymmetries in the blade posterior boundary. The hemispherical body shape of the presently claimed blade minimizes these weaknesses. The blade configuration set forth in claim 9, therefore, in which the posterior boundary is of hemispherical form from end corner to end corner, is not subject to a tendency to deflect non-uniformly and, as pointed out in the specification can be manufactured by mass production methods with high reliability. Accordingly, claim 9 is resubmitted as amended, and overcomes both the anticipation argument that was made and any obviousness argument that might be applied.

Claims 10 and 11 were also rejected under 35 USC §102 as anticipated by Hellenkamp '788. However, Hellenkamp does not disclose a "slot" at column 12, lines 5-9, merely suggesting that the shape of a recess 326 in the blade holder, can be different, from the shape shown. In Hellenkamp, the blade itself has one or two round holes or apertures 318 and 319 and there is no suggestion that these be supplemented by an opening from within the aperture to the blade boundary.

Consequently, claim 10 patentably distinguishes over Hellenkamp not only for the basic reasons given above as to parent claim 9 but also for this opening or interconnection between the posterior boundary and the interior aperture.

Claim 11, which is also dependent from claim 9 now, (as amended) also recites a slot between the posterior boundary and the interior aperture, further specifying that the shape of the slot defines a "unique configuration to identify the blade type". Consequently, this claim also patentably distinguishes over the Hellenkamp reference under both §102 and §103.

Claim 12, dependent from claim 11, distinguishes as do parent claims 9 and 11, and also for the definition in dimensions of the blade itself. Hellenkamp offers no specifications for his blade, as to the thickness of the body, the depth of the blade, or the depth of the beveled edge, all of which are specified in claim 12. The Office action seems to make a number of gratuitous assumptions starting with the statement that the blade could be made with "a thickness about 0.01" ". This teaching is not in the reference. The action then goes on to "say especially if rotated such that the depth of the blade was between 0.3 and 0.4" ", which statement is not understood. Rotation of the blade in any direction has no apparent connection to the dimensions that are used. The alternative argument that changes in size also require only routine skill is respectfully traversed, inasmuch as there is no support in the cited art or literature for a contention that shape and size can arbitrarily be varied. The claim describes a small, precisely designed and angled microkeratome blade with a given set of functional

dimensions meeting the needs of the state of the art in a novel way. Accordingly claim 12 is resubmitted in its existing form, without amendment.

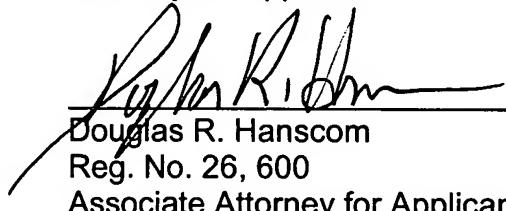
SUMMARY

In the light of the above considerations, applicant respectfully requests reconsideration of the rejection of claims 9-12 as amended. Claims 1-8 are currently withdrawn from prosecution.

Respectfully submitted,

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